



National Aeronautics and
Space Administration
Lyndon B. Johnson Space Center
Houston, Texas



Inspection injection

JSC is primed to share its cutting-edge technologies with industry next week. Story on Page 3.



People progress

JSC employees take on new responsibilities and accept honors for jobs well done. Story on Page 4.

Space News Roundup

Vol. 35

November 8, 1996

No. 44

Mars probe takes breath for weather

Strong upper-level winds forced mission managers to postpone the launch of NASA's Mars Global Surveyor just 1 minute and 6 seconds before the planned liftoff Wednesday.

The countdown and launch from Kennedy Space Center aboard a McDonnell Douglas Delta II rocket went smoothly, and the launch team quickly began recycling systems for two Thursday launch opportunities. The first opportunity was at 11 a.m. and the second at 12:05 p.m. CST Thursday.

The Wednesday scrub came after the last weather balloon sent back its data. Thunderstorms in the area of the launch pad had forced controllers to pass up the first launch opportunity at 11:11 a.m.

A Nov. 7 launch would put the probe on track for arrival at Mars in September 1997 on a scouting mission that could lead the way for a sample return mission early in the next century.

Surveyor will spend four months dipping lower and lower into Mars' upper atmosphere, using a technique called aerobraking, to smooth its highly elliptical orbit into a low-altitude, nearly circular mapping orbit.

By March 1998, Surveyor will be orbiting Mars from pole-to-pole every two hours, using six instruments to systematically compile a database of information and images that will paint the clearest picture yet of the planet's atmosphere, surface and interior. The survey will continue for a full Martian year—the equivalent of two Earth years—amassing global maps of surface topography and weather conditions, and an inventory

Please see **MARS**, Page 4



NASA Photo

The STS-80 crew takes a break during the Terminal Countdown Demonstration Test at Kennedy Space Center. From left are Mission Specialists Story Musgrave, Tom Jones, Commander Ken Cockrell, Mission Specialist Tammy Jernigan and Pilot Ken Rominger. The crew is scheduled to reenter its preflight quarantine period today, then fly back to KSC on Monday for final launch preparations, pending the Monday decision on a target launch date by NASA's Mission Management Team.

Shuttle managers to review launch status Monday

By James Hartsfield

Shuttle managers Monday changed the target date for *Columbia's* launch on STS-80 to no earlier than Nov. 15, providing additional time to complete an analysis and evaluation of nozzle erosion found on one solid rocket used by *Atlantis* in September.

Managers plan to reconvene a Flight Readiness Review panel early next week to hear the findings from the STS-79 solid rocket motor analysis.

"Everyone involved with the investigation of this issue has been doing a superb job and it appears the effort is nearing a point where it will provide us with a good understanding of the phenomenon," Space Shuttle Program Manager Tommy Holloway said. "However, this additional week will ensure the final portions of the investigation are not rushed, and it will allow those involved to organize and present their data in the best way possible as they draw their conclusion."

Although the erosion of nozzle insulation was not severe enough to have posed any danger to *Atlantis'* September flight, managers have studied the problem because it is a higher amount of erosion than has been seen before.

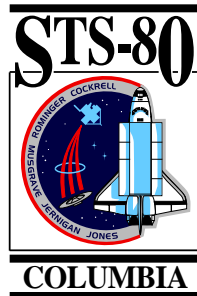
For a Nov. 15 launch Commander Ken Cockrell, Pilot Ken Rominger and Mission Specialists Tammy

Jernigan, Tom Jones and Story Musgrave would fly to Kennedy Space Center late Monday. The launch countdown would begin on Tuesday. The Monday launch window opens at 1:28 p.m. CST, and landing would be on Dec. 1.

At Launch Pad 39B this week, technicians closed *Columbia's* payload bay doors following the successful completion of payload testing; checked the space suits that will be used by Jones and Jernigan during two space walks; and began engine closeouts.

Meanwhile, work continued in KSC's Bay 3 shuttle processing hangar to ready *Atlantis* for a January 1997 launch on STS-81, the fifth shuttle-Mir docking mission. This week, the orbiter docking system was stowed and the three main engines were installed. The STS-81 crew, Commander Mike Baker, Pilot Brent Jett and Mission Specialists John Grunsfeld, Marsha Ivins, Jeff Wisoff and Jerry Linenger, will travel to KSC this weekend to inspect *Atlantis'* payload bay and crew equipment.

In the Bay 2 shuttle hangar, *Discovery* is being prepared for the second Hubble Space Telescope servicing mission. Work this week included servicing of the landing gear, brakes and wheels; checks of the aerosurfaces and hydraulic systems; and outfitting of the payload bay.



Mir crew working to understand space station environment

By Natasha Calder

The mission of the current American on board the Russian Mir Space Station is in its seventh week, with Cosmonaut Researcher John Blaha and his crew mates furthering an agenda of scientific research and studying the structural dynamics of Mir.

The Mir 22 crew—Blaha, Commander Valery Korzun and Flight Engineer Alexander Kaleri—has been spending time trying to find out more about the space station on which they now live as part of the Mir Structural Dynamics Experiment. Understanding large, complex space structures such as Mir will contribute to successful operation of the International Space Station, due for its first element launch in a little over one year.

Other recent experiments being conducted

on the station include daily checks and maintenance on the apparatus that houses the Cartilage In Space experiment, which is an investigation into the growth and maintenance of mature cartilage cells, additional analysis of the dwarf wheat plants in the Greenhouse Experiment, investigating the effects of space flight on the life cycle of plants to provide data for designing advanced life support systems for future space stations, also was sent down to Earth. During an interview, Blaha discussed many of the experiments being conducted on Mir and gave an enthusiastic appraisal of his first six weeks on orbit.

"The mission is going great.... We're busy

about 16 hours a day, to tell you the truth, but I'm loving every second of it. It's kind of hard for me to realize that about six weeks has gone by since I left the planet. It feels like about four or five days," Blaha said. "We've got a lot of scientific experiments we're doing, we're growing wheat, we're growing cartilage in a bioreactor, we're growing a lot of crystals, we're doing a lot of acceleration measurements, measurements of the environment of this space station and of the structural design of it. Those kinds of things can help us build our better space station."

Blaha said there are only three things he's really missed during his time on orbit: his wife,

watching Dallas Cowboys football games and seeing the New York Yankees win the World series. But he said spending an extended period in space has its plusses, including learning the advantages of a space station mission over a space shuttle mission.

"I used to think there wouldn't be much difference, but after being in space for about two weeks you get into a routine. It's more like living on the planet, whereas on a space shuttle mission we're in a big rush to get things done because we're only there for a couple of weeks," Blaha said. "Here you have more time, and there's time to relax on the weekends. I've noticed that the longer I stay here, the better adapted I am and the more efficient I become at any of the work I'm trying to do."

Please see **NEXT**, Page 4



On-site blood drive sets third consecutive donation record

Once again, JSC civil servants and contractor personnel came together to help their community, setting a third consecutive record for total blood donations.

During the JSC On-site Blood Drive, held in conjunction with Safety and Total Health Day, St. Luke's collected 506 donations, including whole blood and platelet donations.

St. Luke's and the program coordinators offered their thanks to all of those who helped set up the drive and who donated. The donations will provide a great benefit to the community, as well as to many JSC employees and family members who may find themselves in need of blood during the upcoming holiday season, organizers said.

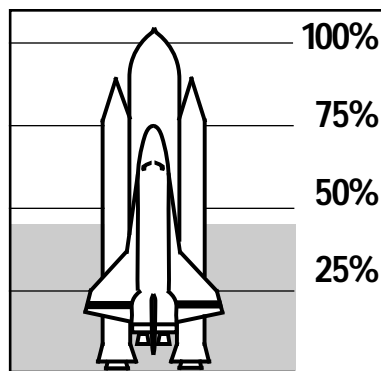
Since some donors could not donate Oct. 23 because they were participating in the Safety and Total Health Day Fun Run, pro-

gram coordinators made special arrangements with St. Luke's to allow donations on the day before and the day after the Fun Run. The added convenience was a factor in the drives big turnout.

For one of JSC's most frequent donors, Gary Kane of the Mission Operations Directorate, this drive marked his 100th donation. St. Luke's presented Kane with a special plaque in honor of the event. Kane has given more than 10 gallons of blood since he began participating in the program.

"I started donating blood in 1971 here at JSC," Kane said.

"The thing that got me involved was the realization that, until an artificial substitute can be utilized for blood, donors are an absolute necessity for the health and well being of the community."



Veteran commander Gibson retires this month

NASA astronaut Robert L. "Hoot" Gibson will leave NASA in mid-November to pursue private business interests.

"While I am looking forward to new challenges and opportunities, I will certainly miss being a part of the NASA team," Gibson said. "I am grateful for the opportunity to work with so many talented and dedicated people over the past 18 years."

"Selected as an astronaut in 1978, the retired Navy captain first flew as pilot on STS-41B in 1984. He subsequently commanded four shuttle missions, STS-61C in January 1986, STS-27 in December 1988, STS-47 in September 1992 and the first shuttle/Mir docking mission, STS-71, in June-July 1995."



Gibson